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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,879	01/29/2002	Asako Kurabe	61282-021	2427
7590	06/28/2005		EXAMINER	
McDERMOTT, WILL & EMERY 600 13th Street, N.W. Washington, DC 20005-3096			PERILLA, JASON M	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,879

Applicant(s)

KURABE ET AL.

Examiner

Jason M. Perilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-14 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/5/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-14 are pending in the instant application.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on December 5, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The drawings are objected to because the figures contain no text labels. It is suggested that the drawings are labeled according to the body of the specification to assist one in the understanding of the invention. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

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informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 1-14 are objected to because of the following informalities:

Regarding claim 1, in line 2, "an Hadamard matrix" should be replaced by --a Hadamard matrix--, in line 5, it is suggested that "initial phase" should be replaced by --initial value--, in line 11, it is suggested that "counter output" should be replaced by --counter-output--, and, in line 11, "said AND-gated output bits" is lacking antecedent basis. Further regarding claim 1, in line 13, the phrase "with respect to output bits corresponding thereto" is nearly indefinite. There is no basis for output bits (plural), and one is unable to determine a definite meaning of respective bits corresponding thereto.

Regarding claim 2, in line 6, "said decode output" should be replaced by --said replaced decode output--.

Regarding claim 3, in line 8, "designated code length" should be replaced by --code length designated--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1, 4, 6, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eo et al (US 6069574; hereafter "Eo") in view of Fullton, Jr. (US 3795864; hereafter "Fullton").

Regarding claim 1, Eo discloses by figure 1 an orthogonal code generating circuit (abstract) for generating an orthogonal code which is defined as a code stream of an Hadamard matrix (col. 1, lines 5-15), comprising: a counter circuit (112, 113) unit for counter-outputting (C0-C5) code stream or column positional signals of said Hadamard matrix from a predetermined initial phase up to a maximum value in an increment order (col. 1, lines 39-56) when a code generation starting signal (START_RESET) is entered into said counter circuit unit; a control circuit unit (114) for outputting a decode output (H(5:0)) used to designate a code number or row of said Hadamard matrix; and a combination circuit unit for AND-gating (118-123) said counter output derived from said counter circuit unit and said decode output derived from said control circuit unit, and also for exclusively OR-gating (124-127) said AND-gated output bits to thereby output serial data of said orthogonal code (HOUT_64). In the orthogonal code generating circuit of Eo, only one row of a Hadamard matrix (i.e. col. 2, H4) is output according to the output of the control circuit. That is, the control circuit of Eo is disclosed as outputting an "ALL_ZERO" output (col. 2, line 65). However, as one skilled in the art is readily aware, the remaining rows of orthogonal codes may be generated by outputting from the control circuit various decode outputs according to various rows of the Hadamard matrix. Eo does not explicitly disclose outputting a decode output based upon a code designation signal to select one of the rows of the Hadamard matrix.

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However, Fullton teaches a nearly identical circuit for outputting a given row of a Hadamard matrix (abstract) wherein the control circuit (31) takes a code designation signal (ROW ADDRESS inputs) to select a particular row of the matrix (col. 8, lines 5-13). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize a control circuit that takes as input a code designation signal as taught by Fullton in the code generation circuit of Eo because all rows of the orthogonal Hadamard matrix could be generated.

Regarding claim 4, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Further, Eo discloses that said counter circuit unit starts said counter output from said initial phase (RESET, i.e. all zeros) when a code initial phase setting value (START_RESET) is entered, said initial phase corresponding to said code initial phase setting value.

Regarding claim 6, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Further, Eo discloses that the code generation circuit is utilized for separating channels of a mobile communications system and extracting a source signal (col. 1, lines 5-25) or, as broadly as claimed, for a demodulating apparatus.

Regarding claim 9, Eo in view of Fullton disclose the limitations of claim 6 as applied above. Further, Eo discloses that the spreading code generator is used in the reception apparatus of a spread spectrum signal (col. 1, lines 5-25).

Regarding claim 13, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Further, Eo discloses that the orthogonal code generating circuit is used

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for a mobile terminal apparatus (col. 1, lines 5-15) comprising a spreading and demodulating apparatus (col. 1, lines 15-25).

7. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eo in view of Fullton, and in further view of Takayuki et al (JP Pub. 2000-89933; hereafter "Takayuki" – Cited in IDS).

Regarding claim 2, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Eo in view of Fullton do not explicitly disclose that plural bits of the code designation could be swapped to create a hierarchical code stream. However, Takayuki teaches an orthogonal code generator that generates rows of a Hadamard matrix (para. 0001-0013). Further Takayuki teaches that by the circuitry of figure 1, plural bits of the row or code designation signal may be altered or replaced (para. 0053 and 0058) to generate codes other than Hadamard codes or hierarchical codes. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made swap plural bits of the code designation signal of Eo in view of Fullton as taught by Takayuki because codes other than Hadamard codes could be thereby easily produced.

Regarding claim 5, Eo in view of Fullton, and in further view of Takayuki disclose the limitations of claim 2 as applied above. Further, Takayuki discloses switching between said Hadamard code and said hierarchical code when a code generation switching signal is entered (fig. 1).

8. Claims 7, 8 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eo in view of Fullton, and in further view of Komatsu (US 6181732).

Regarding claim 7, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Eo in view of Fullton do not explicitly disclose that the code generating circuit is used for a synchronization process apparatus. However, as one skilled in the art is aware, a known orthogonal code is utilized at the side of a receiver to synchronize a received signal to an orthogonal code used during transmission of the signal, and Komatsu teaches such a use. Komatsu teaches via figure 8 a transmitter spreading a signal with a spreading code generated by spreading code generator (4') and a receiver which synchronizes a locally generated identical spreading code with the transmitted signal to receive the signal (col. 1, lines 20-55). Thereby, Komatsu teaches that a signal spread by an orthogonal spreading code and transmitted must be synchronized with the same orthogonal spreading code to be received. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize the orthogonal code generator of Eo in view of Fullton in a synchronizing apparatus as taught by Komatsu because the orthogonal code could thereby be utilized to despread or receive a signal which had been previously spread.

Regarding claim 8, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Further, Komatsu teaches the use of an orthogonal code generator in both spreading (fig. 8, ref. 4') and despread/synchronizing (fig. 8, ref. 7') apparatus as applied to claim 7 above.

Regarding claim 10, Eo in view of Fullton, and in further view of Komatsu disclose the limitations of claim 7 above. Further, Komatsu illustrates in figure 8 that the

synchronizing process apparatus (7') is used for a reception apparatus (B) of a spectrum spread signal (col. 1, lines 38-55).

Regarding claim 11, Eo in view of Fullton, and in further view of Komatsu disclose the limitations of claim 8 as applied above. Further, Komatsu discloses that said spreading process apparatus is used for a transmission apparatus (fig. 8, ref. 4') of a spectrum spread signal (col. 1, lines 22-37).

9. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eo in view of Fullton, and in further view of Bottomley (US 6515980).

Regarding claim 12, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Eo in view of Fullton do not explicitly disclose that the orthogonal code generator is used for a base station comprising a demodulating apparatus, a synchronizing apparatus or a spreading process apparatus. However, Bottomley teaches the notoriously known base station and mobile station configuration of a cellular telephony system according to figure 1 wherein a base station is referenced as 26 and a mobile station is referenced as 22. Bottomley further teaches that spread spectrum communications is performed between the base station and the mobile station via the use of a spreading code (col. 2, lines 40-49). Bottomley discloses that a base station will spread a data stream intended for transmission by a user-specific spreading sequence (col. 2, lines 49-58) and a mobile station will receive the data stream by correlating it by the same user-specific spreading sequence (col. 2, lines 59-67). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize the spreading code generator of Eo in view of

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Fullton in the base station of a cellular system as taught by Bottomley because it could be utilized by the base station to spread a data stream and enable cellular communications using spread spectrum techniques.

Regarding claim 14, Eo in view of Fullton disclose the limitations of claim 1 as applied above. Further, Eo in view of Fullton, and in further view of Bottomley disclose the additional limitations of claim 14 as applied to claim 12 above.

Allowable Subject Matter

10. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art of record not relied upon above is cited to further show the state of the art with respect to orthogonal code generators.

U.S. Pat. No. 5193094 to Viterbi.

U.S. Pat. No. 5311176 to Gurney.


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The Applicant is invited to contact the Examiner by telephone in reference to a response to this office action placing the case into condition for allowance. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vanderpuye Kenneth can be reached on (571) 272-3078. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jason M. Perilla
June 23, 2005

jmp


CHIEH M. FAN
PRIMARY EXAMINER